



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/766,041

01/29/2004

Mamoru Nakasuji

011470A

2576

38834

7590

10/19/2004

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP  
1250 CONNECTICUT AVENUE, NW  
SUITE 700  
WASHINGTON, DC 20036

EXAMINER

JOHNSTON, PHILLIP A

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/766,041	<b>Applicant(s)</b> NAKASUJI ET AL.	
	<b>Examiner</b> Phillip A Johnston	<b>Art Unit</b> 2881	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 58-84 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 58-84 is/are rejected.
- 7) ☒ Claim(s) 59 and 68 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10-08-2004</u> . | 6) <input type="checkbox"/> Other: _____  |

***Detailed Action***

1. This Office Action is submitted in response to the preliminary amendment filed 1-29-2004, wherein claims 1-57 were cancelled and new claims 58-84 were added. Claims 58-84 are pending.

***Claims Objection***

2. Claims 59 and 68 are objected to because of the following informalities: In claim 59, the word "troidal" should be "toroidal". In claim 68 "detecting the intercity", should be "detecting the intensity". Appropriate correction is required.

***Claims Rejection – 35 U.S.C. 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 58-69, and 77-84 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,038,018, to Yamazaki.

Yamazaki (018) discloses an electron beam inspection apparatus that includes the following;

(a) An electron gun for emitting a plurality of electron beams, spaced apart at equal intervals to scan a semiconductor wafer, and a deflector 27 for deflecting secondary

Art Unit: 2881

electrons toward the secondary optical system, that incorporates an  $E \times B$  filter above the objective lens system 14, having coils 41a and 41b, equivalent in the shape of a toroid as recited in claims 58, 59, 61, and 63. See Column 10, line 42-55; and figure 9 below;

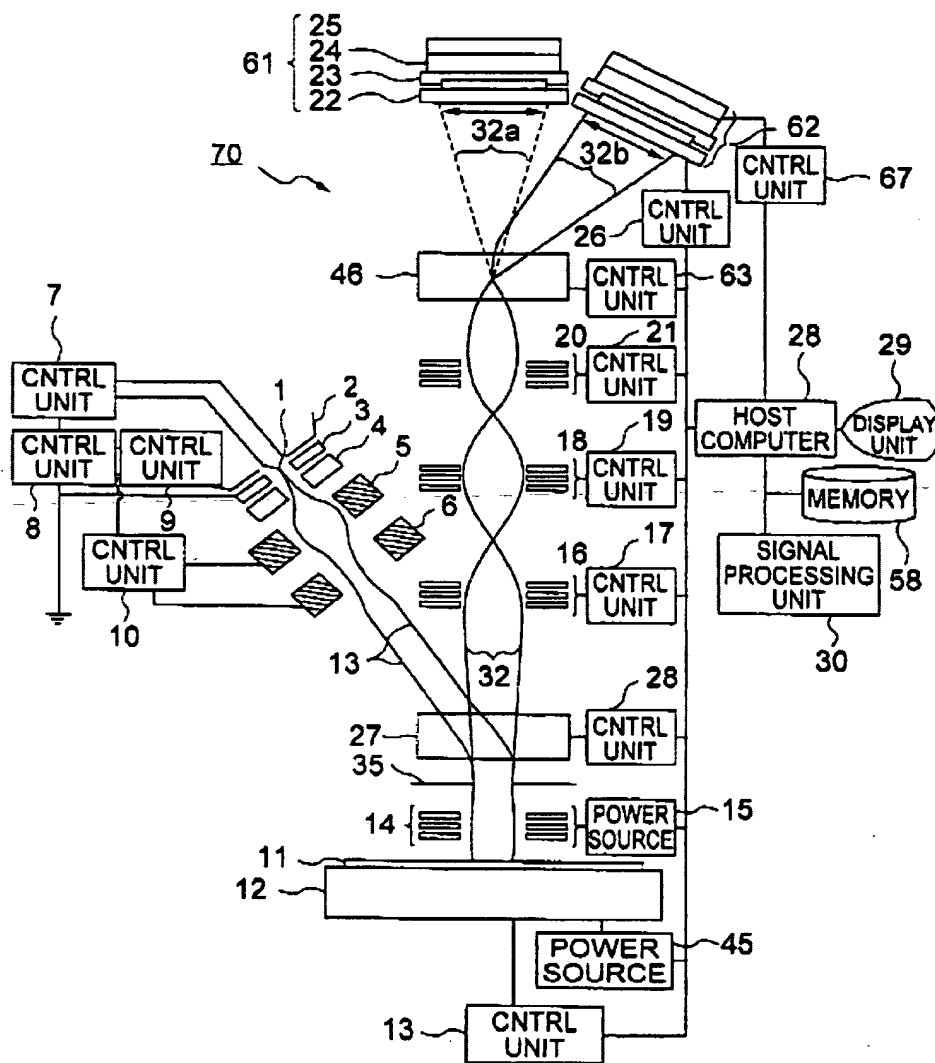


FIG. 9

Art Unit: 2881

(b) Imaging with aTDICCD detector synchronized with stage movement, as recited in claim 60. See Column 7, line 56-62;

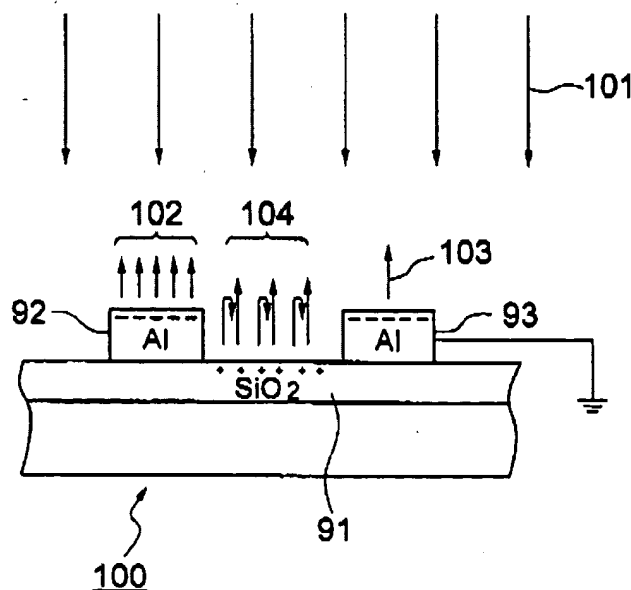
(c) Adjusting beam current and beam spacing relative to image blur (S/N) caused by secondary electrons, as recited in claims 62 and 63. See Column 6, line 11-32;

(d) Scanning a regular pattern in units of stripe width, as recited in claims 64 and 65. See Column 13, line 39-52;

(e) Beam intensity detection and control, as recited in claims 61 and 65. See Column 9, line 20-23;

(f) Defect detection and image processing by image comparison, as recited in claim 69. See Column 5, line 39-57; and Column 13, line 3-18;

(g) Voltages applied to the wafer surface using power source 45, as recited in claim 67. See Column 2, line 6-23; Column 6, line 56-64; and Figure 2 below.

**FIG. 2**

(h) Regarding claims 77-84, Yamazaki (018), as applied above discloses all the limitations of the methods claimed therein.

***Claims Rejection – 35 U.S.C. 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 70-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,038,018 to Yamazaki, and Tanaka, U.S. Patent No. 6,509,957.

Yamazaki (018), as applied above fails to teach the use of a stage apparatus and method using hydrostatic bearings and partitions, as recited in claims 70-76. However, Tanaka (957) discloses stage device 12 disposed within the compartment 42, which forms a wafer chamber 40 therein. The periphery of the lower end portion of the lens barrel of the projection optical system PL is connected (sealed) to the top wall of the compartment 42.

The stage device 12 is mainly constituted by a stage fixed plate 44 located within the wafer chamber 40, two wafer stages WST1 and WST2, a stage driving system and a wafer interferometer system. The two wafer stages WST1 and WST2 are floatingly

supported via a vacuum preload hydrostatic bearing, which is a non-contact bearing, above the stage fixed plate 44. See Column 10, line 46-64; Column 32, line 26-39; and Column 35, line 36-44.

Therefore it would have been obvious to one of ordinary skill in the art that the electron beam inspection apparatus and method of Yamazaki (018), can be modified to use the stage device of Tanaka (957), to provide a moving member that can move within a two-dimensional plane having a first direction and a second direction perpendicular to the first direction that includes a first stationary member and a second stationary member, thereby separate processing can be performed simultaneously with respect to objects on the stages.

---

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications should be directed to Phillip Johnston whose telephone number is (571) 272-2475. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor John Lee can be reached at (571) 272-2477. The fax phone number for the organization where the application or proceeding is assigned is 703 872 9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.


Art Unit: 2881

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PJ

October 8, 2004



JOHN R. LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800

---